UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/888,964	06/25/2001	Charles Boice	EN9010004US1	1429

30400	7590	10/05/2005

HESLIN ROTHENBERG FARLEY & MESITI P.C.
5 COLUMBIA CIRCLE
ALBANY, NY 12203

EXAMINER
VO, TUNG T

ART UNIT	PAPER NUMBER
2613	

DATE MAILED: 10/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>03</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16 and 18-38* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16, 18-38* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

        1.☐ Certified copies of the priority documents have been received.

        2.☐ Certified copies of the priority documents have been received in Application No. _____.

        3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

1.   In view of the appeal brief filed on 07/25/2005 and appeal conference with supervisors,

Mehrdad Dastouri and Chris. Kelley, and the examiner, Tung Vo, dated 09/27/2005,

PROSECUTION IS HEREBY REOPENED. The office action is set forth below.

To avoid abandonment of the application, appellant must exercise one of the following

two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37

CFR 1.113 (if this Office action is final); or,

(2) initiate a new appeal by filing a notice of appeal under 37 CFR 41.31 followed by an

appeal brief under 37 CFR 41.37. The previously paid notice of appeal fee and appeal brief fee

can be applied to the new appeal. If, however, the appeal fees set forth in 37 CFR 41.20 have

been increased since they were previously paid, then appellant must pay the difference between

the increased fees and the amount previously paid.

Claim Rejections - 35 USC § 102

2..   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3.   Claims 1-11, 18-24, 26-27, 31-38 are rejected under 35 U.S.C. 102(b) as being

anticipated by Hang (US 5,115,309).

Re claims 1-11, 18-24, 26-27, 31-38, Hang discloses a system for encoding a sequence of

video frames comprising (fig. 1): multiple encoders (VIDEO CODER 1, 102-1-102-N of fig. 1)

connected in parallel, each encoder (102-1 of fig. 1) to receive the sequence of video frames for

encoding thereof (SUB-VIDEO1, 106-1 of fig. 1), wherein each encoder of said multiple

encoders employs a set of encode parameters (average quantization step size from previous

frame and the average numb of bits produce per pel, an initial set of estimates of channel sharing

factors, fig. 5), at least one encode parameter of the sets of encode parameters being varied

between at least two encoders of the multiple encoders connected in parallel (col. 2, lines 30-50);

a controller (103 of fig. 1) coupled to the multiple encoders for selecting one set of encode

parameters from the sets of encode parameters which best meets an encode objective (109-1 of

fig. 1); means (112 of fig. 1) for outputting a bitstream of encoded video data encoded from the

sequence of video frames using said one set of encode parameters; and wherein said controller

further comprises means (103 of fig. 4, 401 of fig. 5) for automatically adapting an encode

parameter in one or more encoders of the multiple encoders when no set of encode parameters of

the sets of encode parameters employed by the multiple encoders produces an encoded result

which meets the encode objective (A, B of figs. 9 and 10, note 1119 of fig. 10); wherein the set

of encode parameters employed by each encoder of said multiple encoders comprises a

predetermined static set of parameters (quantization step sizes 502 of fig. 5).

Moreover, Hang discloses wherein said sequence of video frames comprises a single

channel bitstream of video data (105 of fig. 1); wherein the set of encode parameters employed

by each encoder of said multiple encoders includes at least one of: a bit rate for a resultant

encoded stream (see abstract, note a dynamic channel allocation unit for specifying a bit rate for

each video coder in a set of parallel video coders comprising an overall video coder is disclosed)

; field or frame encoding; group of picture (GOP) structure, including number of B pictures and

distance between pictures; and 3:2 pull down inversion; wherein said controller selects the set of

encode parameters which yields the best picture quality as measured by a picture quality

indicator (PQI), wherein the encode objective comprises best picture quality (IMAGE

CHARACTERISTIC PARAMETER COMPUTATION, 501 of fig. 5); wherein said bitstream of

encoded video data is produced by said system in a single pass of said sequence of video frames

through said system (112 of fig. 1); wherein said controller ascertains the encode objective from

a plurality of possible encode objectives (figs. 4 and 5).

Additionally, Hang discloses wherein the encode objective comprises one of best picture

quality, constant picture quality, VBV buffer fullness, constant bits per picture, constant bit rate

(CBR), transrating/transcoding, or variable bit rate encoding (VBR) (fig. 6 and 7, note a coder

dependent parameter that is often a constant number); wherein the set of encode parameters

employed by each encoder of the multiple encoders comprises at least one of the following

parameters: bit rate; field or frame encoding (frame coding and field coding (102-1-102-N of fig.

1); GOP structure; 3:2 PDI; target bits per picture; predicted average mquant; search range;

promote P to I; demote I to P; average activity; and VBV buffer fullness; wherein said means for

outputting comprises an encode subsystem for subsequently encoding the sequence of video

frames using said one set of encode parameters to produce said bitstream of encoded video data

(104 of fig. 1); wherein said means for outputting comprises means for outputting an encode

result of an encoder of the multiple encoders employing said selected one set of encode

parameters, wherein said encoded result comprises said bitstream of encoded video data (112 of

fig. 1).

Claim Rejections - 35 USC § 103

1.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

2.   Claims 11, 13-16, 25, and 28-30 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Hang (US 5,115,309) as applied to claims 1, 12, 18, and 27, and further in

view of Park et al. (US 5,528,628).

Re claims 11, 13-16, 25, and 28-30, Hang does not particularly teach multiple means for

user selection of the encode objective, and user initialization of one or more encode parameters

in the sets of encode parameters employed by the multiple encoders, buffers and each buffer

comprises memory for storing encoded video data comprising at least one encoded frame of the

sequence of video frames and switching between the buffered encoded video data then provide to

a subsystem encoder as claimed.

However, Park teaches means for user selection of the encode objective, and user

initialization of one or more encode parameters in the sets of encode parameters employed by the

multiple encoders (selecting table42(1-42(N) of fig. 3), wherein said means for outputting

comprises multiple buffers (23(1)...23(N) of fig. 2), each buffer connected to an output of a

respective encoder of said multiple encoders (21(1) ... 2141 of fig. 2), and means for forwarding a buffered encoded result of the encoder having the selected one set of encode parameters (25 and 25 of fig. 2); wherein each buffer comprises memory for storing encoded video data comprising at least one encoded frame of the sequence of video frames (1st BUFFER, 21(1) of fig. 2); wherein each buffer of said multiple buffers comprises memory for holding a number of encoded frames of the sequence of video frames sufficient to allow said controller to select said encoded result which best meets the encode objective (23(1)...23(N), 25, and 26 of fig. 2); an encode subsystem, and means for switching between said means for selecting and said encode subsystem (26 of fig. 2), wherein said bit-stream of encoded video data can be taken as an output of one encoder of said multiple encoders, or can comprise an output of said encode subsystem as determined by said means for switching (col. 4, lines 47-55).

Taking the teachings of Hang and Park as a whole, it would have been obvious to one of ordinary skill in the art to incorporate the teachings of Park into the system of Hang to generate variable-length-coded (VLC) data into a minimum amount of data using a plurality of variable-length-code tables and subsequently transmits variable-length-code table selection information for the respective VLC data, thereby improving data compression efficiency.
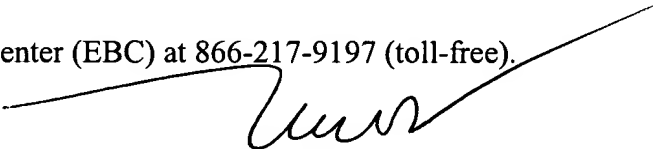
Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See the previous Office Action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tung Vo whose telephone number is 571-272-7340. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mehrdad Dastouri can be reached on 571-272-7418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tung Vo
Primary Examiner
Art Unit 2613

MEHRDAD DASTOURI
SUPERVISORY PATENT EXAMINER
TC 2600